The growth effects on degrowth: what remains of the center-periphery model?

Fakhri Issaoui and Talel Boufateh and Mourad Guesmi

Ecole Supérieure d'Economie Numérique, Université de la Manouba, Tunisia, Ecole Supérieure de Commerce, Université de la Manouba, Tunisia, Faculté des Sciences Economique et de Gestion de Jendouba, Tunisia

18. June 2013

The Growth Effects on Degrowth: What Remains of The Center-Periphery model?

Abstract: Although economic growth is considered one of topics the most discussed and studied by economists, some questions are hitherto unexplored. In this article we will try to address one of these issues by studying the effect of growth shocks of hegemonic countries on the growth of peripheral countries. By using a structural VAR model, we have shown that the peripheral countries integration in trade relations with the center countries, although it may allow the growth of short and medium term, it prevents them, to confirm their long-term economic independence.

Key words: Growth, Center-Periphery, Development

ISSAOUI Fakhri,[1] BOUFATEH Talel[2] and GUESMI Mourad[3]

---

[1] Ecole Supérieure d'Economie Numérique, Université de la Manouba, Tunisia
[2] Ecole Supérieure de Commerce, Université de la Manouba, Tunisia
[3] Faculté des Sciences Economique et de Gestion de Jendouba, Tunisia

1. Introduction

There is no doubt that economic growth is one of the most discussed topics by economists. Such studies are divided into three distinct areas. The first focused on the sources of growth (exogenous growth versus endogenous growth), the second analyzed the growth effects on macroeconomic variables while the third axis studied and identified the key macroeconomic variables that can affect growth.

However, to our knowledge, no study has been able to study the effect of the economic growth of one country on economic growth of other countries, despite many theories that are geared towards similar problems. Thus, the main purpose of this article is to study the effect of developed countries growth on the developing countries growth and vice versa. Indeed, the importance of such relationship is to test two hypotheses often asked and rarely verified. To what extent the growth in developed countries does it affect the growth of developed countries? Does it exist a symmetrical exchange of growth? If not the case, what kind of country benefits more in term of the growth exchange? Thus, this paper will try to respond to all questions asked above.

To well solve the problematic and address this range of issues, we will be forced, in the first section, to expose the main explanatory theories of development[4] and in the second section to focus on the appropriate methodology to determine the effect of growth shocks (in developed country) on the developing country growth and vise versa. The third section will analyzes and interprets the empirical results. The fourth section will concludes the main results of the paper.

Thus, this paper will try to respond to all questions presented above and will be organized as follows. In the next section, we will expose the development theories and their transmission mechanisms. The third section will analyze the results while the fourth one concludes the paper.

[4] According to Perroux (1961) development is "the combination of mental and social changes in a population which make it suitable to grow cumulatively and sustainably its real and global product"

2. Development theories and transmission mechanisms

According to liberal theory, the development is the result of trade exchange that can take place between two countries regardless of their development state. The Ricardian model of comparative advantage and this of HOS (based on the factor endowments of a trading region) and all posterior models have converged towards a consensus stating that all exchangers can benefit from the exchange. However, these models have not asked the questions underlying the distribution of profits or the trade effects on underdevelopment. Indeed, for the liberal philosophy the most important is that the exchange can lead to reciprocal gains. For who benefits most these gains remains a secondary question. Smith summed up the charitable exchange saying, "Give me what I need and you'll have from me, that, you need". This line of conduct constitutes the basic logic and the strategic guideline of the international financial institutions (IFIs) that have summarized the issue of development in the mere consent of a country to open its borders to trade.

Beyond these theoretical discussions and far away from all criticism there is a main truth. The commercial exchange is beneficial to both consumers (who have more varieties of goods) and producers (who will enjoy a size wider market). However, these gains recorded by a country, could they engender development? The answer to this question is a-priori negative especially when the exchange takes place between a developed and a developing country.

Indeed, it is commonly accepted that the trade exchange allow a labor international division more specific and specialized. Also, it allows an efficient reallocation of economic resources which results from the sectorial specialization. Thus, two types of economics are created. The first is the developing countries in which the productive sectors are, generally, labor-intensive (e.g primary and tertiary sectors). The second, is the developed countries where the capital-intensive sectors.

It is worth noting that such specialization and labor international division can generate growth for the two economic types, but not necessarily the development or at least " developer development" concept for which we are so attached because it distinguishes the development of socio-economic structures (UAE, Denmark, Norway etc.) to development that can generate development for third countries (USA, UK, France, Japan etc..).

In this context R. Prebisch (1950), partisan and defender of the economic independence theories, emphasized in his work the ideal appearance of economic theories which veil the actual outcomes of economic exchange. Often, it doesn't lead to a fair exchange as long as the periphery countries have recorded in the medium and long term, deterioration in their terms of trade. To cope, the peripheral countries need to develop strategies based on import substitution industries (ISI).

Gunnar Myrdal (1978) accused the market mechanisms that are unable, in macroeconomic scale, to ensure equilibrium. Thus, the free market mechanisms which based on the supply and demand forces and on price flexibility at domestic and / or international level can only exacerbate inequality. He states that the entire structure of economies and international trade of the developing countries has become so distorted and unbalanced as a result of uncontrolled market forces during some generations. This is explained by closely selfish policies of developed countries where nothing can be really be less effective.

For his part, Arghiri Emmanuel (1975) refuted the assumption of trade exchange fairness between countries having different development levels. The author assumes that international trade between the periphery and the center never leads to an equal exchange. Also, said exchange, equal in appearance and uneven in its logic, includes an economic exploitation exercised by developed countries on those of the periphery. Indeed, as long as the developed countries (center) export capital-intensive goods and developing countries (periphery) export the labor-intensive goods then it follows that the exchange which would take place between the two groups country never can be neither fair nor just. In other words, given that the peripheral countries export goods containing strong labor values and import goods with low labor values (capital goods) then this leads to a transfer of surplus profit, from the developing countries to those developed.

For S. Amin (1973), the capitalist mode of production is the principal cause of underdevelopment affecting the South countries. They are obliged to trade with developed countries while accepting unfair trade rules and principles. Hence it can be concluded that a wealth transfer will be done from the periphery countries to those of the center allowing them to further their development to the detriment of the one of developing countries.

However, in our simple view, we believe that the problem of underdevelopment lies not only in the simple deterioration of terms of trade or the simple process of domination that exercise the hegemonic countries on developing countries, but rather to a more important factor. In fact, are the development strategies adopted by the center countries that determine the degree and nature of development in which the peripheral countries must accept and comply.

The ex ante determination of these strategies will lead to an action plan from the center countries that revolves around the classic questions that political economy has exposed since its inception: what and how to produce? The answer to this question leads, at each time, at the setting of productive plan that will set all other economic variables that are in accordance with the principles of productive efficiency (e.g target markets, market strategies, inputs, etc.). This will determine the periphery role that it must play in every moment of history by providing them the only possibilities allowed by the center.

Thus, we believe that the international division of labor is the culmination of the development plan adopted and decided by the center. The persistence of underdevelopment depends in large measure to the difficulty which faces the periphery to anticipate the action of the center in terms of development strategies. Thus, it seems difficult for a small country like Tunisia, Morocco, Algeria to anticipate the EU and U.S. strategies in terms of development (type of investment, the technological content, the new research topics etc.). Therefore, faced with an information shortage (which itself is the result of underdevelopment), it would be impossible for such countries to get bogged down in the paths of long-term growth and create, consequently, a developer development.

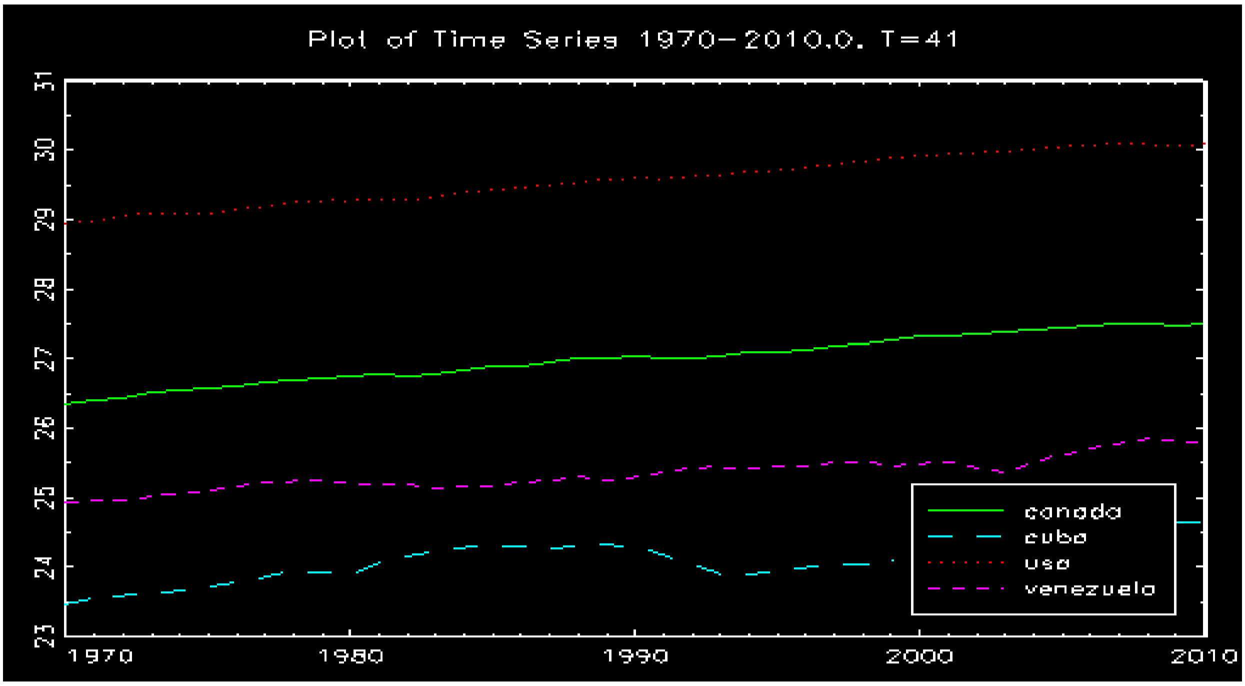
The center, benefiting from an informational distance on the periphery determines easily the behavior of the latter by forcing it to undergo its development program (produce its proper inputs, natural resources exploitation, rent transfer, allow it to sell its outputs in their markets etc.). This type of implicit contracts established between developing and developed countries is, indeed, a specific form of the agency theory applied, in our case, to a more aggregated and more distant level that this of enterprises and firms namely macro-Nations agency problems.

3. Results Analysis and economic implications:

Generally, to study the effects of growth shocks on growth or any other similar problematic, we should recourse to a dynamic multivariate analysis. Thus, in this paper we propose to study two panels of countries. The first one is composed by the U.S, Cuba, Venezuela and Canada. The second group is composed by France, Morocco and Tunisia. Our choices are based on the obligation of simultaneous existence, in each of the two groups, of a hegemonic country and of peripheral countries. So, in the first panel of countries, the U.S are designed as hegemonic country while Cuba and Venezuela are designed as peripheral countries. In the second model, it is clear that France represent the hegemonic country while Morocco and Tunisia are the peripheral ones. We believe that economic sensitivity of the two samples of countries to growth shocks should be treated both in the short-term and in the long-term. The series of GDP (current LCU), are obtained from the World Bank. Data are annual and spread over the 1970-2010 period for the U.S.A, Canada, Venezuela and Cuba and from 1961 to 2011 for France, Morocco and Tunisia.

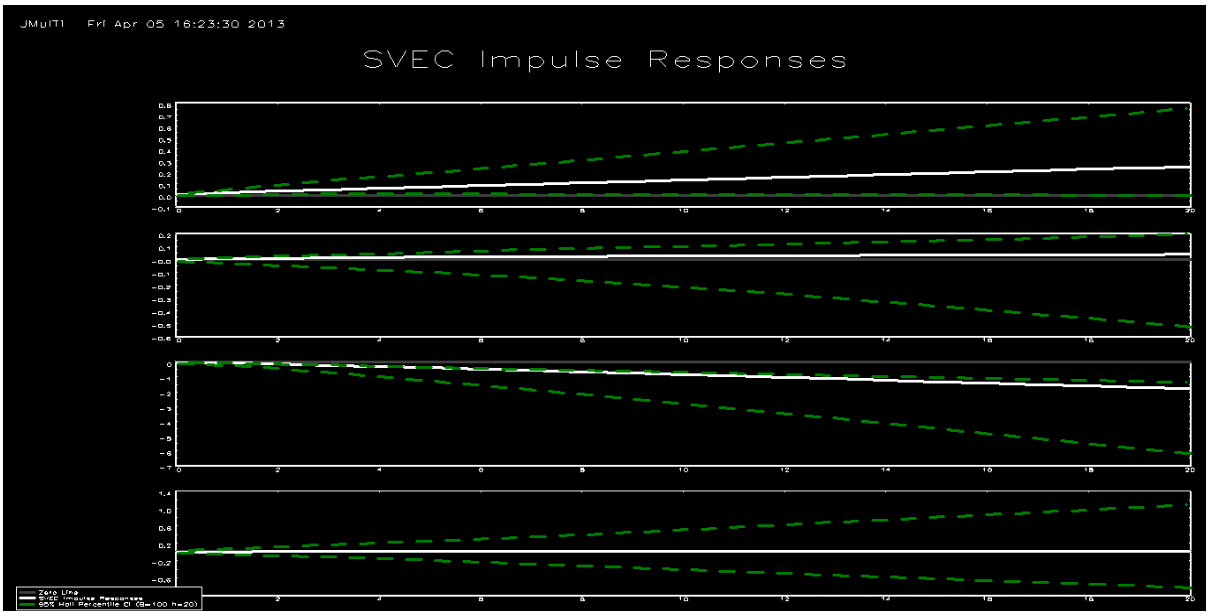
Model 1: this model is composed by three long-run shocks and one short-run shock. Two restrictions are maintained. The first is that Venezuela has no long-term effect on U.S. and Canada and the second is that Canada has no long-term effect on the Venezuela.

Figure 1 : Series Evolution:



- Long-run shock Responses

Figure 2: Response of the US, CANADA, CUBA and VENZUELA (from top to bottom) to the USA growth shock.



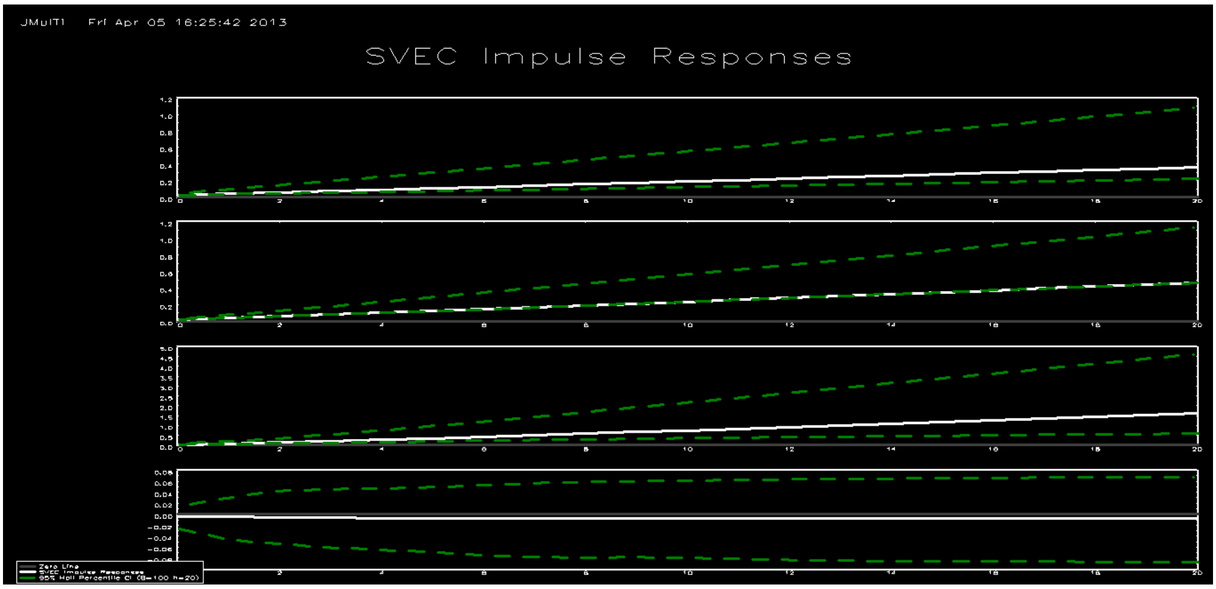
According to the figure (2) it is clear that the long-run growth shock effects in U.S. on the four countries of our sample varies significantly. Indeed, the effects are positive and increasing in the U.S., slightly positive and increasing in Canada, negative and decreasing in Cuba and almost zero in Venezuela.

It is often noticed that the U.S. economy, benefited in long-run from its proper shocks either positive or negative as show the important precedent crises (e.g. 1929, 1973, 2008 which are cited as simple illustrations). Thus, Can we say that the Schumpeterian concept of "creative destruction" is still valid to explain the behavior of the U.S. economy? The answer to this question is a priori positive given that the stylized facts have shown that such shocks are a major source of long-term expansion. Concerning the shock of U.S. growth on Canadian growth we note that despite its positivity is low. This goes against our intuition especially since both countries are highly integrated.

The long-term impact of U.S. growth on the Cuban growth is negative and decreasing which means that despite the U.S. economic embargo on Cuba (since 1962 and still in place) the Cuban economy is largely dependent on the economy U.S. This leads us to say that the relationship USA / Cuba has a strange relationship. Indeed, it concerns a hegemonic country (USA) having a conflict with a small country (Cuba) and where their relationship eventually establish a tight embargo causing her developmental delay (this embargo was strengthened by the enactment of the Helms-Burton 1996). However, the role of the United States as the godfather of the Cuban economy in many sectors of the economy (because it satisfies the majority of its food imports, technology, etc..), allows us to say that the center countries are the first which penalize countries that do not share their ideological bases and the first which aim to benefit from all the opportunity that the under developed countries offer.

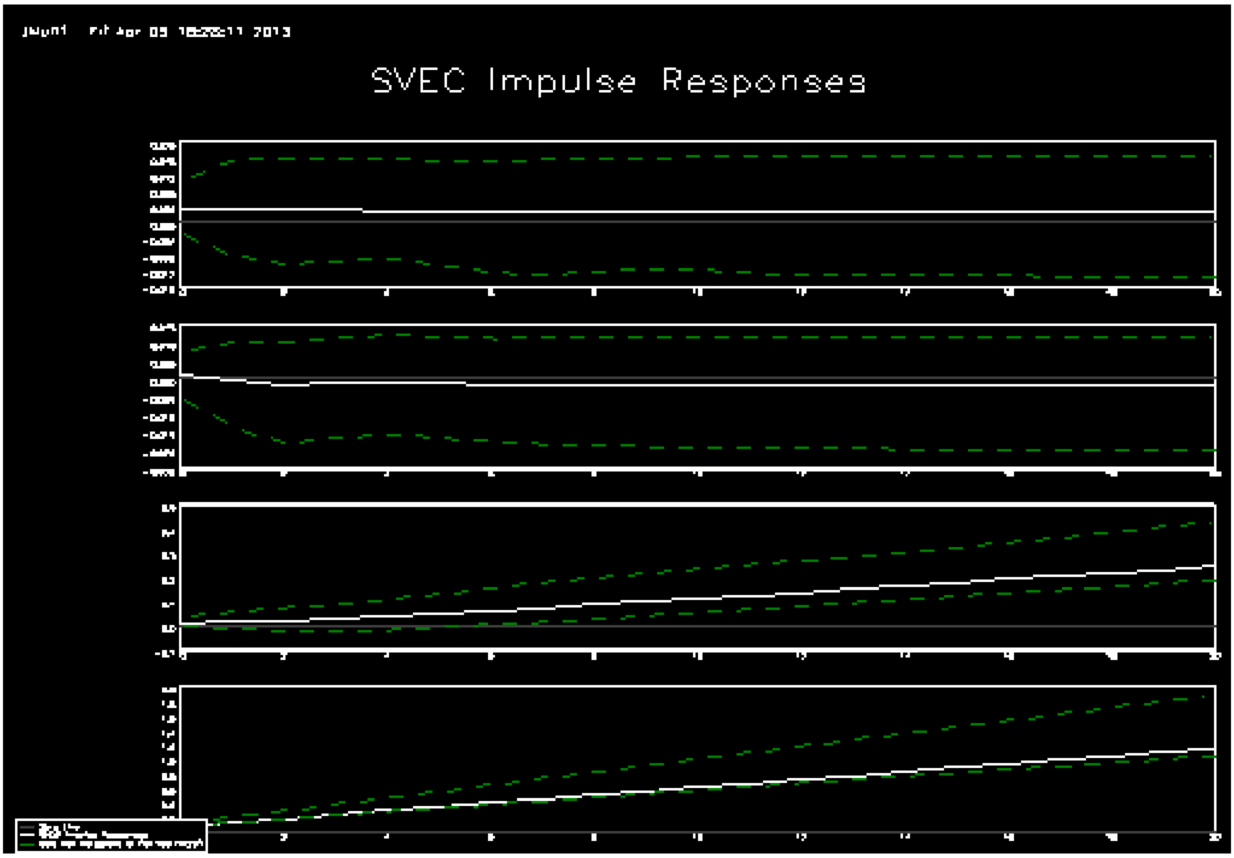
The effect of a long-term impact of U.S. growth on growth in Venezuela is almost zero which means the existence of total economic independence between the two countries. This is explained by many reasons, primarily the political conflict between the two countries (for the arrival of a socialist government in power since 1999) according to which Venezuela has sought new business partners as well in Latin America as elsewhere.

Figure 3: Responses of USA, CANADA, CUBA and VENZEULA (from top to bottom) to a Canadian growth shock.



Although the U.S. growth impact shock has not had a significant impact on Canadian growth (Figure 2), we note (from Figure 3) that the long-run effect of a Canadian growth shock on U.S. growth is positive and increasing. Thus, we can conclude at this stage of analysis that the U.S. economy responds and reacted immediately to the Canadian shock. In other words, we can say that NAFTA / NAFTA (North American Free Trade Agreement) has allowed the U.S. economy to benefit more in terms of growth. A priori, the Canadian degrowth is solved partly by a positive response of U.S. economic (which benefits in terms of investment, production, capital flows). Also, the Canadian shock had a positive and increasing effect on the Cuban growth, which means, explicitly, the existence of trade flows between the two countries as well as a degree of interdependence despite the embargo economic which the country was facing. However, no effect of that shock is recorded on Venezuela. The economic independence of the two economies may be explained by political considerations that are part of the logic of ideological conflicts (capitalism vs. socialism).

Figure 4: Responses of USA, CANADA, CUBA and VENZEULA (from top to bottom) to VENEZUELA Responses of USA, CANADA, CUBA and VENZEULA to Venezuelan growth shock.

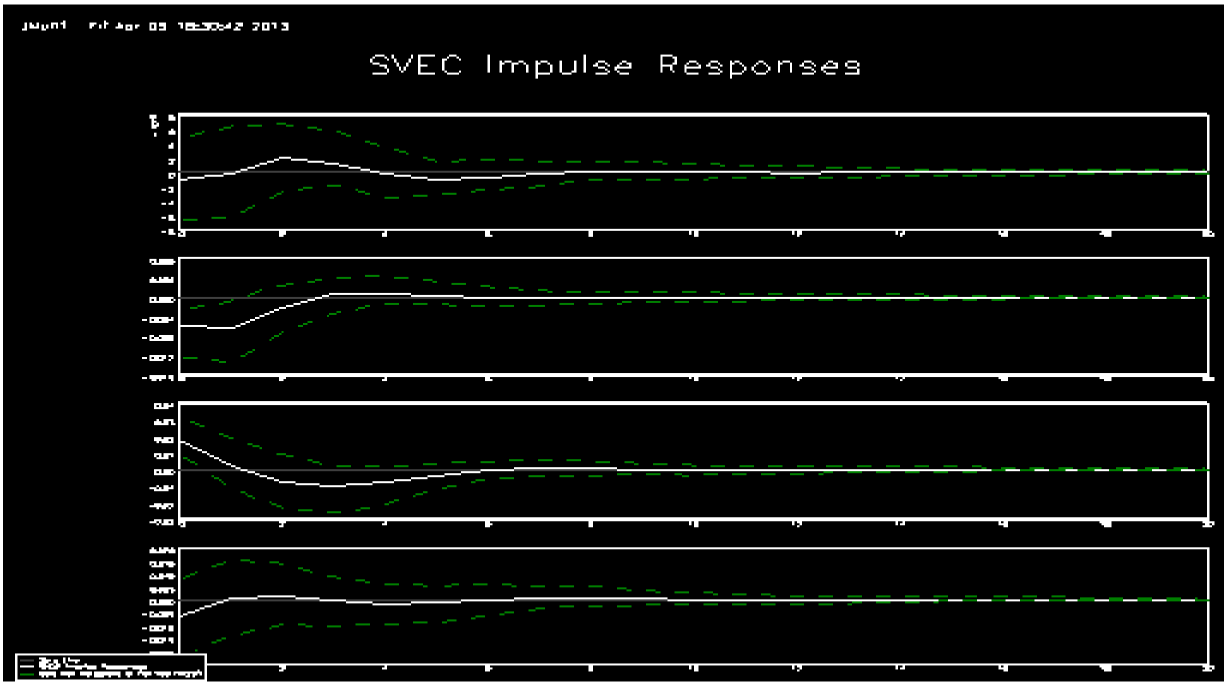


From Figure 4, we note that the long-term effect of a growth shock in Venezuela is slightly positive and quasi-stationary on the USA, slightly negative and stationary in Canada and positive and increasing in Cuba and Venezuela. The weak reactions of the Canadian and U.S. growth following a Venezuelan growth shock reflects the nature of the relationship between this two groups of countries that appears based on political and economic conflict between two different and even opposing ideologies. Indeed, the willingness of some countries in Latin America to get rid of hegemony and influence of the U.S. leads to the creating of new commercial zones that can counter the capitalist free trade zones. The integration between Canada and the U.S. under the NAFTA and Venezuela within the ALBA (Bolivarian Alliance for the

Peoples of Our America) has created a degree of independence and/or economic dichotomy between members of these two zones.

Response to the short-run shocks:

Figure 5: Responses of the USA, CAN, CUBA and VENZ (from top to bottom) to Cuban growth shocks



From Figure (5) we note that the short-run effect of the Cuba growth shock on the American growth follows three phases. In the first we notice that it exists an immediate, negative and increasing effect until it reaches, in the end of the second period, its minimum level. In the second phase, effect is decreasing while in the third and final phase the effect is canceled. It follows from the above that the American response to the Cuban economy shock is subject to the principle of prudence (act within the limits allowed by policy constraints without, however, contribute to growth). Canada's response, relatively is worse than U.S. this is explained by the fact that Canada is one of the most important economic partners of Cuba (in addition to Argentina, China and Spain). Consequently, face to the Cuban shock, the Canadian economic is affected by a loss of profits over time.

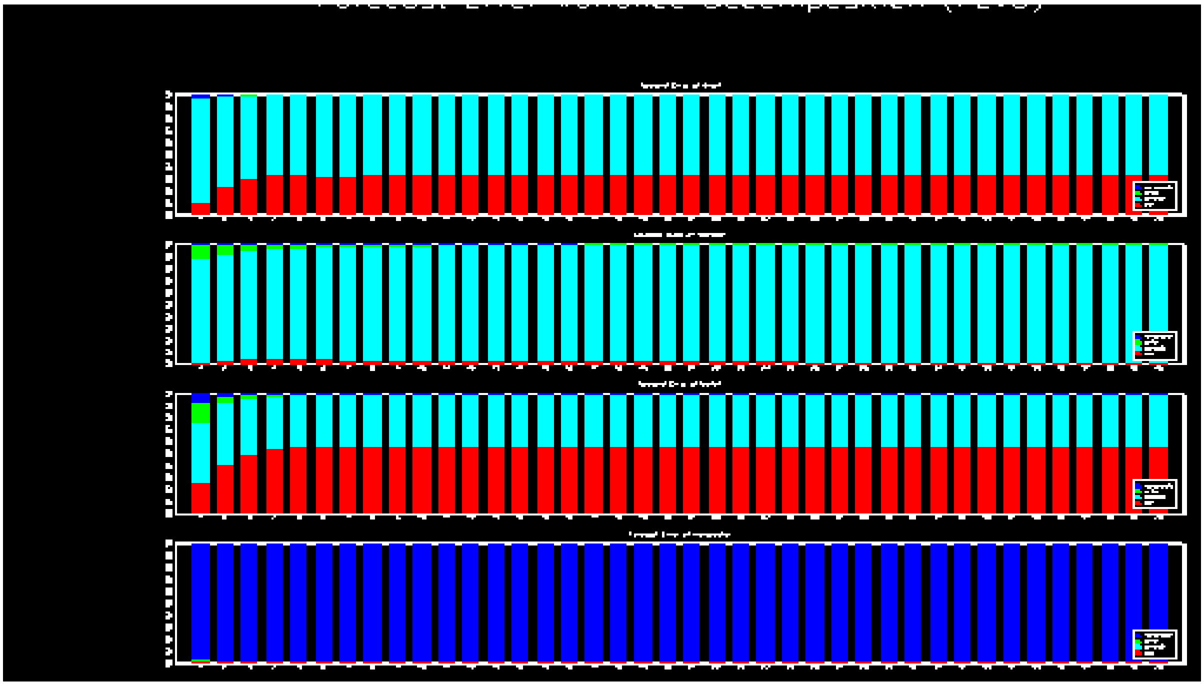
In the Cuban case we note that the short-run instantaneous effect of Cuban growth shock on the Cuban growth, despite its positivity in the first period, it is decreasing. During the next three years, the said effect is negative before being canceled later. It follows from such a development that Cuba is struggling to manage its own shocks, which depend, in large measure, from the outside especially the USA and Canada which are considered as their Trade partners the most important.

Table1: Summary of the impulse response functions

	Response of the U.S	Response of Canada	Response of Venezuela	Response of Cuba
Usa	Positive and increasing	Almost zero	Almost zero	Negative and decreasing
Canada	Positive and increasing	Positive and increasing	Almost zero	Positive and increasing
Venezuela	Slightly positive and constant	Slightly negative and constant	Positive and increasing	Positive and increasing
Cuba	Negative and increasing, positive and decreasing and vanishes from the seventh period	Negative and increasing and vanishes from the third period	Positif and decreasing, negative and increasing and vanishes from the third period.	Negative and increasing and vanishes from the the second period.

It follows from Table (1) three fundamental ideas. The first is that the growth impact of a hegemonic country (USA) does not benefit to any country, Among Others, its traditional trading partners (Canada). Also, the country benefits, from their proper shocks as well as from those which occur in other countries (Canada, Venezuela). Second, the Canadian growth impact, benefits all other countries except Venezuela. However, this country benefits only from its own shocks. Third, Cuba and Venezuela benefit mutually of their own shocks.

Figure 6: The Forecast Error Variance Decomposition of USA, CAN, CUBA VENZ (from top to bottom)

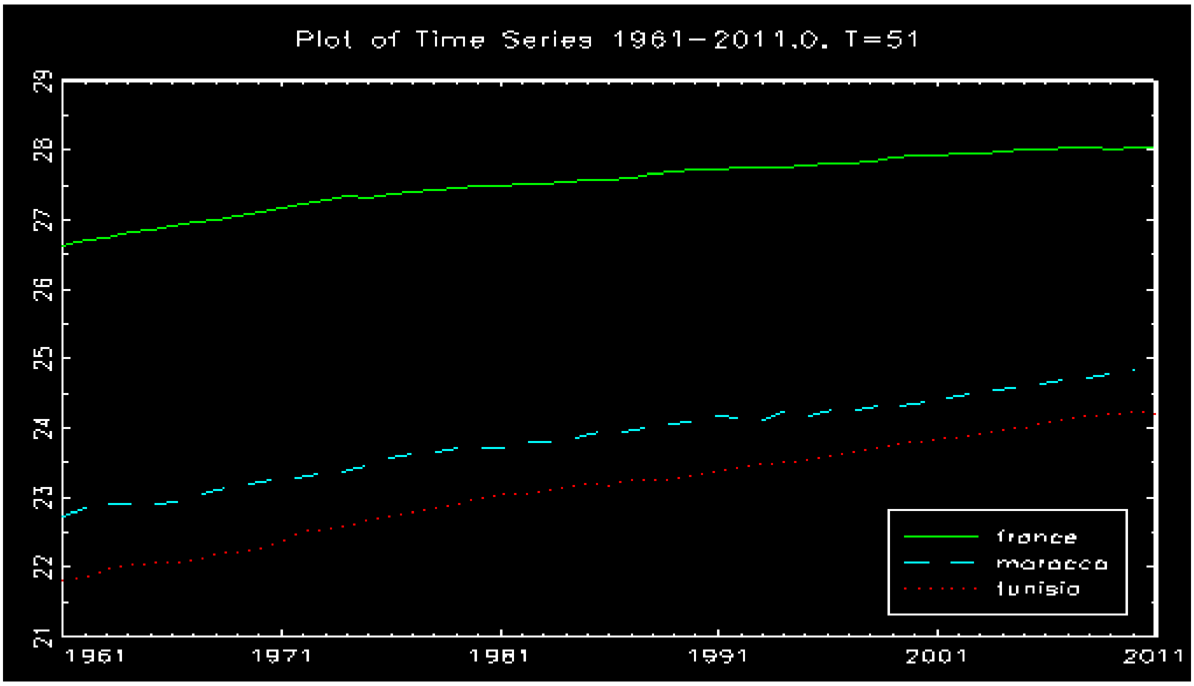


According to this graph, we note that Canada is one of the major sources of the U.S. growth. Also, Canadian growth is largely dependent on the U.S. However, Venezuela is gradually in process to be more and more independent because it has chooses to cooperate, on the economic plan with non-capitalist countries.

Model 2:

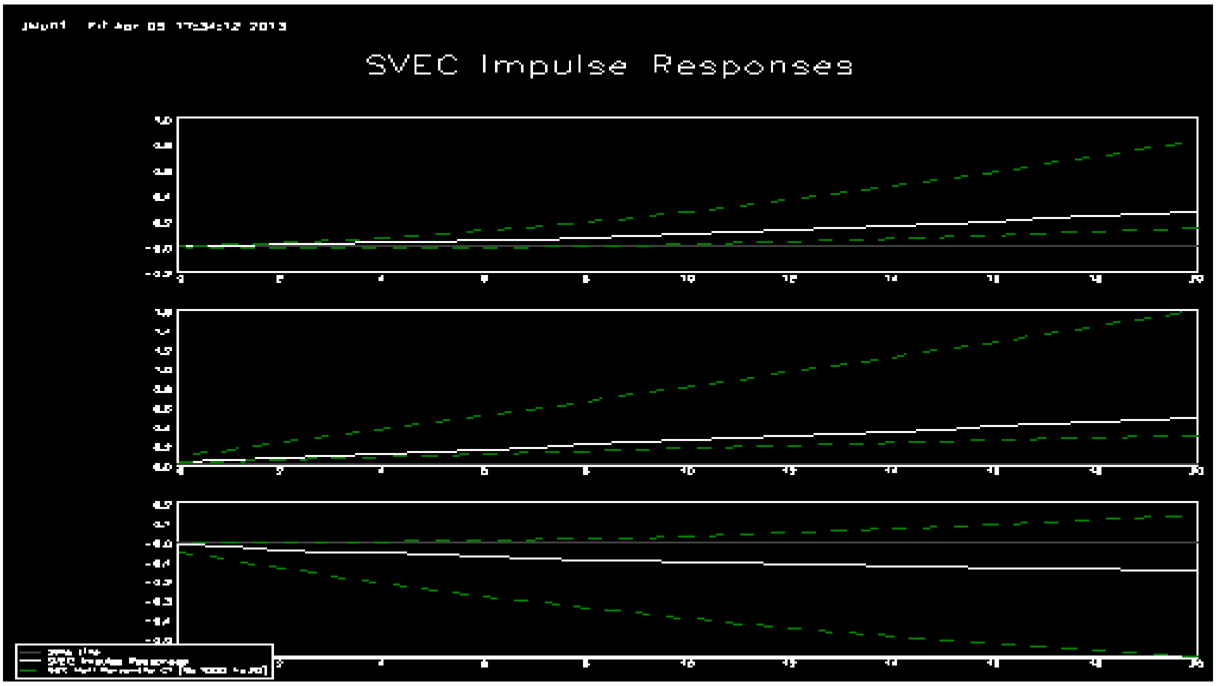
This model is composed of two long-run shocks and one short-run shock. Thus, only one restriction is maintained: The Morocco shock has no long-run effects on France.

Series evolution:



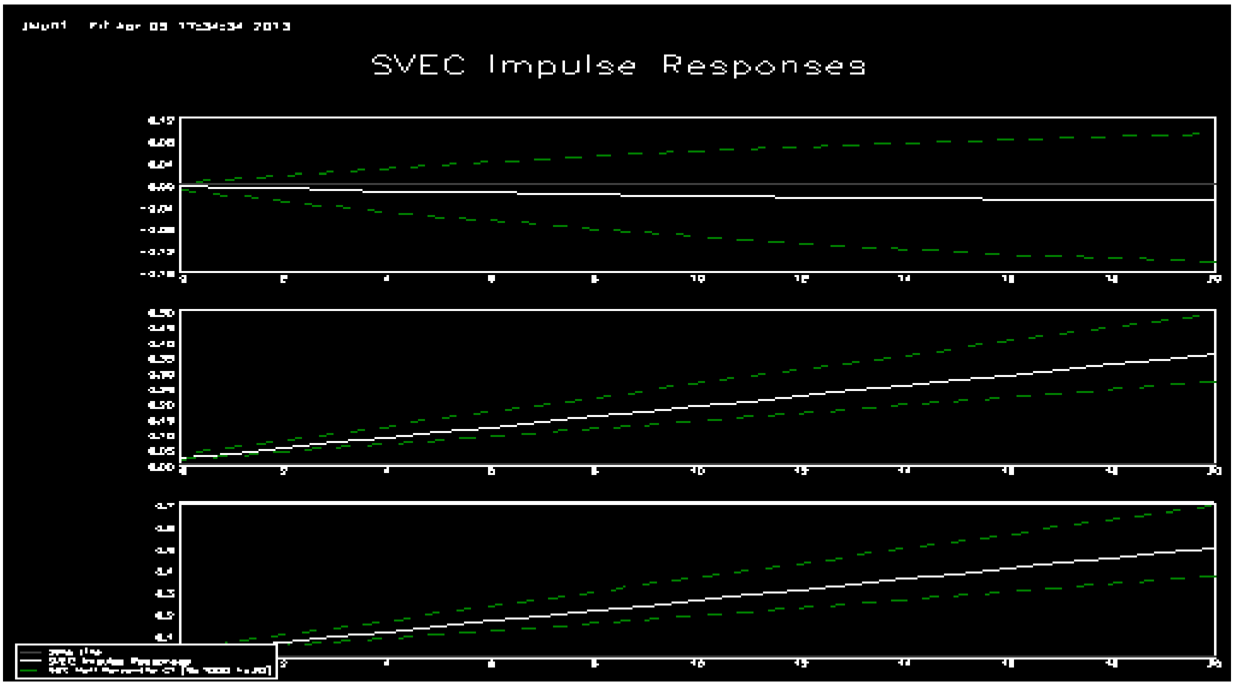
Long-run shock Responses:

Figure7: Response of FRANCE, MOROCCO and TUNISIA (from top to bottom) on the French growth shock



According to figure (7), we note that the long-run GDP growth's shock effects, in France were simultaneously positive and increasing in France and Morocco and negative and decreasing in Tunisia. Thus, it seems that the Moroccan economy contributes actively in the French growth and benefits consequently from their growth shocks. This allows us to confirm that Morocco becomes, more and more, a new economic power in the north of Africa, given its dynamics and its competitiveness. The latters have allowed Morocco to become a place of attraction for French investments. However, in the Tunisian case we note that the long -run French shocks have had negative and decreasing effects. This can be explained by its large dependence to France.

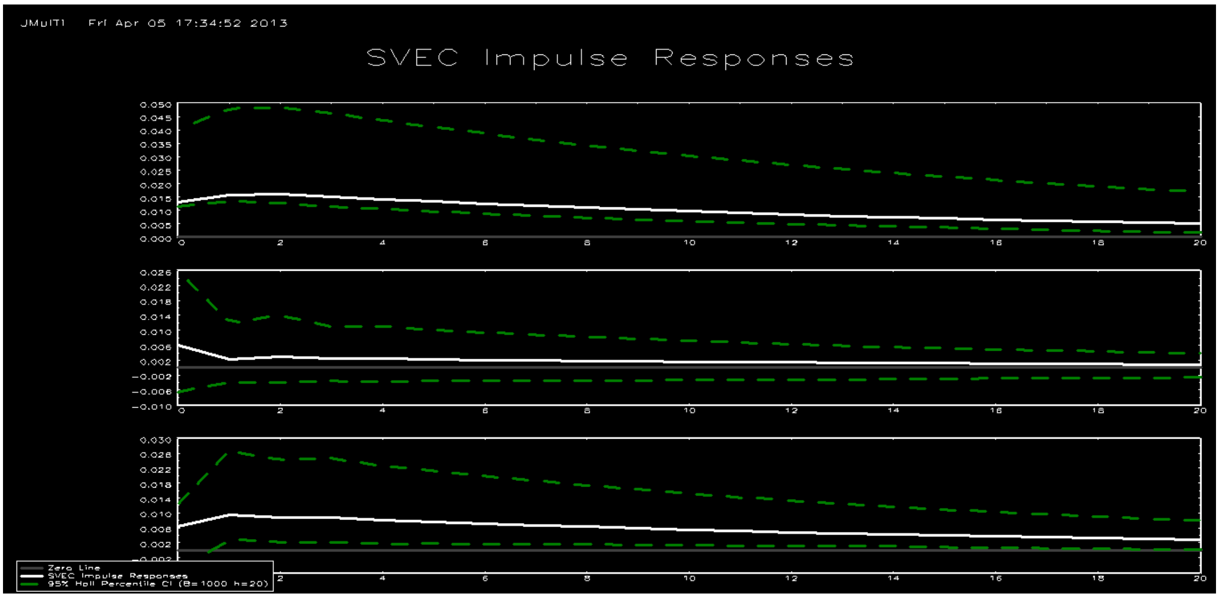
Figure 8: Response of FRANCE, MOROCCO and TUNISIA (from top to bottom) on the Morocco growth shock.



According to the impulse response functions (figure 8 above), we note that the long-term growth's shock effects in Morocco are negative and decreasing in France; positive and increasing in Morocco and Tunisia. So, it seems that there exists a complementarity economic relationship between Morocco and France which is explained through the mechanism of French investment in morocco. Indeed, it is plausible to assume that the Morocco's growth shocks are, in part, the result of the shocks that face the French enterprises (Total, Vivendi Universal, Suez, EDF, Renault…etc.) in Morocco (the French investments represent 51% of the total foreign direct investment). However, Tunisia has largely benefits from Moroccan shock for the simple reason that the two countries share the same comparative advantages and therefore, each country benefits from the shocks of the other.

Short-run shock Response

Figure 9: Response of FRANCE, MOROCCO and TUNISIA (from top to bottom) on the Tunisian growth shock

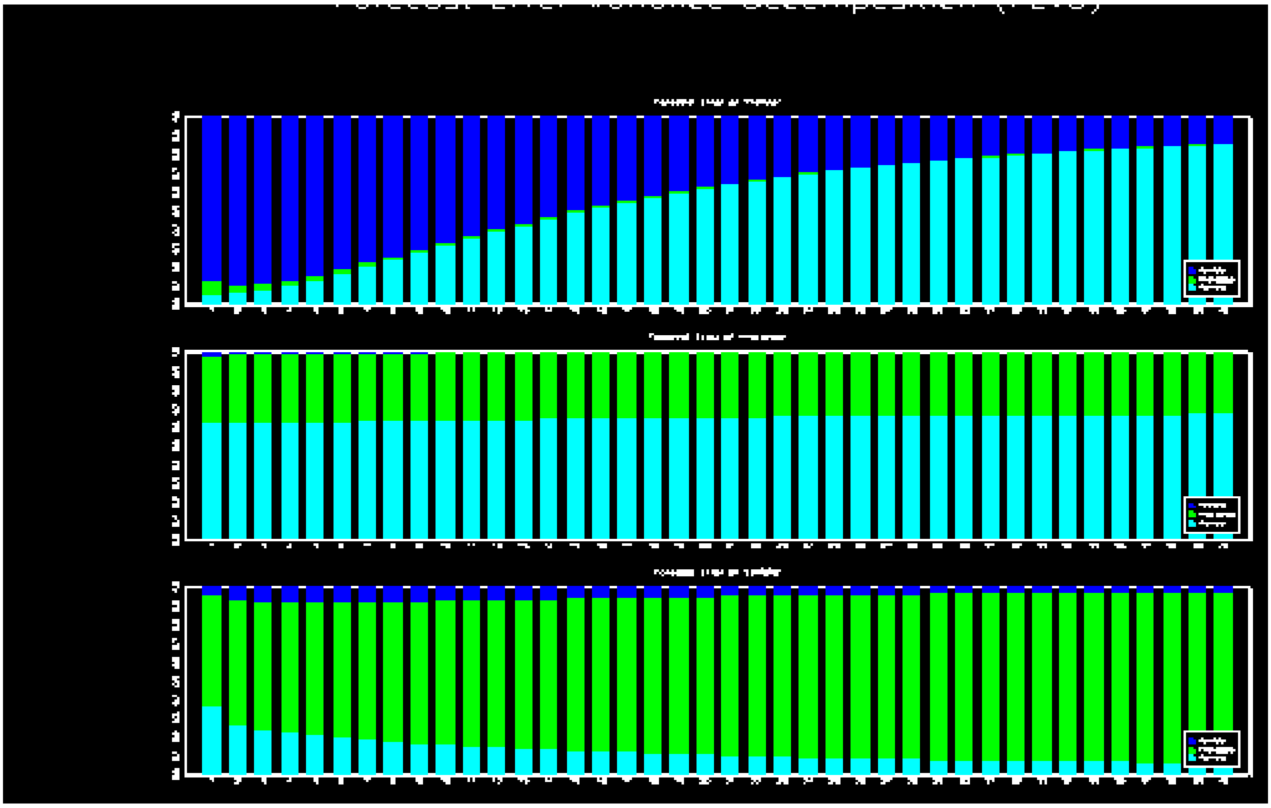


According to the impulse response functions (figure 9 above), we note that the long-run effect of Tunisian growth's shock is positive and decreasing in France, Morocco and Tunisia. In addition, it seems that France benefits more from Tunisian shocks. This can be explained by the depth of economic interdependence (historically determined) between the two countries. Similarly, Morocco benefits from Tunisian shocks to the extent that at the time of impact, the degradation of Tunisian productive sectors benefits the Moroccan enterprises especially those which evolve in the competitive sectors (tourism, mechanical and electrical industry, food etc..). Table (2) resumes all the results discussed above

Table 2: Summary of the impulse response functions

	Response of France	Response of Tunisia	Response of Morocco
France	Positive and increasing	Positive and increasing	Positive and increasing
Tunisia	Positive and decreasing	Positive and increasing	Almost zero
Morocco	Negative and increasing	Positive and increasing	Positive and increasing

Figure 10: The Forecast Error Variance Decomposition of France, Morocco and Tunisia (from top to bottom)



From figure 10 we can note that the French shock is explained in the short and medium run, by the same shock. However, in the long-term, the shock depends much more of the Tunisian shock. Thus, this confirms that France continue to solve its growth problems by the exploitation of opportunities that peripheral countries offers to it.

It is also noted, that the Morocco shocks are largely dependent of France growth, both in the short and long term. This implies that economic relationship, between the two countries is strategic and has been building on the basis of inter-temporal decisions in which French enterprises were oriented to morocco market. This behavior is explained by the incentive scheme and the Morocco economic policy which tried to be integrated in the Euro-Zone as a trade partner especially given the comparative advantageous whom offers compared to Algeria, and Tunisia. Equally, it seems that, this relationship is turned to complementarity more than to competition which explains why morocco shocks are, in the long-run; manage in all times by its proper shock and in major part by French shock.

In the Tunisian case, we note that its growth shocks, in their major parts, are explained by French shocks but especially those of Morocco. In other words, the Tunisian growth is negatively correlated to Morocco. This is due to the similarity of their Comparative advantages and in their economic structures which imply that each country benefits a lot, in growth term, from the loss of the other. In the long-run this situation becomes more and more strong and confirmed.

4. Concluding Remarks

As a conclusion of this paper we can remark that the development process is not totally dependent on the liberal theories stipulating that free exchange can promote instantaneously the growth of all trade partners. Indeed, behind apparent trade relations, exists a balance of power that favor developed countries to the detriment of those developing. Our empirical study showed that the hegemonic countries such as the U.S. and France benefit from the shocks of their trade partners especially those the less developed.

References:

1. Amin. S (1973). Le développement inégal, Editions de Minuit, 1973

2. Aghiri. EMMANUEL (1975). L'échange inégal - Essai sur les antagonismes dans les (1975). L'échange inégal - Essai sur les antagonismes dans les rapports internationaux. Paris, Maspéro, 1975, 422 pages.

3. MYRDAL, G. (1978d), Procès de la croissance : à contre-courant, traduit de l'américain par Tradecom, Paris, Presses universitaires de France.

4. Prebisch, Raúl. *The Economic Development of Latin America and Its Principal Problems* (New York: United Nations, 1950)